Habitat: the character of the place in which a type occurs. As examples of the use of this term, may be cited the expression "in moist woods," or "in sandy pine barrens," or "in sphagnum bogs."[3]

Your committee wish furthermore to point out one phase of work in geographic botany in which almost every botanist may render important service to the science, namely the study of the "Pflanzenformation," or as it may be styled in English, the *plant formation*. This is an assemblage of plants, living together in a community, subjected to the same environmental conditions, and working with each other to maintain their existence under these conditions. The sphagnum bog of New England, the savannah of North Carolina, the pine and oak scrub of Florida, the prairie of Iowa, the chaparral of California, the yellow pine forest of the New Mexican plateau, and many other types of vegetative growth, are examples of such formations. The extent of each formation, the identification of the plants of which it is composed, their relation to each other, and their combined relation to their environment, are matters of the deepest interest, awaiting the investigation of the systematist, the anatomist, and the physiologist.

Respectfully submitted,

FREDERICK V. COVILLE,
N. L. BRITTON,
WALTER T. SWINGLE,
Committee.

The report was briefly discussed, and adopted.

A resolution requesting a grant of $100.00 for the support of a botanical table at the Marine Biological Laboratory at Woods Hole, was presented and unanimously endorsed by the section for transmission to the council.

Abstract of papers read before Section G of the A. A. A. S.

The address of the vice-president of the Section, Dr. J. C. Arthur, on "The Development of Vegetable Physiology," was delivered on Thursday, August 29th, before a large and appreciative audience. The address is given in full in another part of this number.

Papers were read before the section on the following Friday and Monday as follows:

FRIDAY MORNING, AUGUST 30TH.

RUSSELL, H. L.: *A leaf-rot of cabbage.*—Mr. Russell described a bacterial disease attacking the petioles of cabbage leaves near the base and manifesting itself by a wilting of the leaf. It spreads into the parenchyma until it reaches the fibro-vascular bundles, in whose *alkaline* tissues the bacteria

[3] For a somewhat more detailed discussion of these definitions see Contributions from the U. S. National Herbarium **4:** 10, 11. 1893.

find good conditions for rapid development and spread. The germ apparently finds access to the tissues by longitudinal checking. The disease has not proved serious except in wet weather or on plants copiously sprinkled. It seems to be a different disease from that described by Garman.

SMITH, ERWIN F.: *The southern tomato blight.*—The more important points brought out by this paper were the non-identity of the disease with the cucumber wilt, and its identity with the potato wilt, the susceptibility of various other solanaceous plants, including the egg-plant, and the establishment of the cause of the disease. It was found that a bacillus, not yet fully studied, will set up the disease by inoculation, which after a time is followed by other organisms that produce the stinking wet-rot. The primary infection of the host takes place, as a rule, through the parts above ground.

GALLOWAY, B. T.: *Observations on the development of Uncinula spiralis.*—The development of the mycelium, conidia and perithecia, was described, bringing out many new details. The germination of the ascospores was described. It was found that material kept in thin muslin sacks staked to the ground was in good condition for study throughout the winter. The ascospores could not, however, be made to germinate until spring. A curious growth of mycelium from the resting perithecial cells was observed, which appeared to be a possible method of continuing the life of the fungus. The paper will be given in full in a later number of this journal.

TRUE, RODNEY H.: *The effect of sudden changes of turgor and of temperature on growth.*—Radicles of Vicia Faba were used for the experiments. The variations in turgor were secured with solutions of nitrate of potassium. It was ascertained that a period of retardation of growth followed a change in the concentration or in the temperature, whether the change were in an increasing or decreasing direction. The reaction is that of a shock to the irritable organism.

FRIDAY AFTERNOON, AUGUST 30TH.

WOODS, ALBERT F.: *Recording apparatus for the study of transpiration of plants.*—Describes an automatic device for continuous registration of the loss of water by transpiring plants. The apparatus is a modification of the weighing rain gauge used by the United States Weather Bureau, the principal change being to secure greater sensitiveness. This paper will appear in full in a later number of this journal.

BRITTON, N. L.: *Notes on the ninth edition of the London Catalogue of British Plants.*—The author compared the number and character of the changes in generic names in this edition with those of the "check list" of American plants, stating that only three per cent. differed, in all other cases the oldest name being accepted.

HOLFERTY, GEORGE M.: *Pressure, normal work and surplus energy in growing plants.*—Mr. Holferty first discussed the pressure exerted by roots when they meet an obstacle, showing that if the growing part is free this pressure begins at once, that the pressure increment sets in with its full amount at once, and that it reaches a normal maximum. In stems, on the contrary, pressure begins only after a latent period of half an hour, the pressure increment is an increasing quantity at first, constant for a short time, and finally a decreasing quantity for a long period. It was shown, second, that the surplus energy of plants is high when compared with normal work. The average ratios are, in the laboratory 21.8:1, in the greenhouse 5.5:1, and in the garden 4.6:1. Garden plants show a capacity of lifting weight of nearly 400^{gm} per sq. mm. of cross section.

HOLM, THEO.: *Obolaria Virginica; a morphological and anatomical study.*—The author presented a general sketch of the systematic position of the plant, based upon its morphological and anatomical characters in comparison with those of some saprophytic and parasitic plants. Its affinities are believed to lie more with Orobanchaceæ than with Gentianaceæ.

COVILLE, FREDERICK V.: *Botany of Yakutat Bay, Alaska.* This paper embodied a report upon a collection of plants made at Yakutat bay by Frederick Funston, in 1892, with a general account of the relation of plant life to environmental conditions and to native industries.

MONDAY MORNING, SEPTEMBER 2D.

The morning session was a joint session with Section F.

ARTHUR, J. C.: *The distinction between animals and plants.*—The advantages of using structural characters in distinguishing plants and animals was pointed out, and attention called to the fact that physiological characters only had heretofore been proposed. The necessity of drawing the characters from the mature vegetative individual was also urged. The following definitions were suggested: Plants are organ-

isms possessing (in their vegetative state) a cellulose investment; animals are organisms possessing (in their vegetative state) a proteid investment, either actual or potential.

MINOT, CHARLES S.: *Rejuvenation and heredity.*—The paper traced the rôle of the embryonic type of cells in plants and animals as a necessary predisposition of structure for the action of heredity. The rôle of these cells in animals and plants in reproduction and regeneration was discussed, especially to show that their functions render it impossible to accept Weismann's theory of heredity. It was pointed out that the theory in all essential particulars is Nussbaum's and not Weismann's, whose attitude towards his critics was incisively criticized.

SWINGLE, WALTER T.: *Fungus gardens in the nests of an ant near Washington, D. C.*—The nests of *Atta tardigrada* Buckl. near Washington are small subterranean cavities 6–10^{cm} in diameter, situated from 2 to 15 or 20^{cm} below the surface. Almost the whole cavity is filled with a grayish material loosely and irregularly cemented together. A large part of this substance consists of the excrements of a leaf-eating larva which the ants carry in. On these pellets the ants cultivate a fungus whose free hyphæ end in glistening spherical knobs similar to those described by Möller from the ant gardens of southern Brazil and designated by him "kohl-rabi." They are 22–52μ wide and 30–56μ long, while the supporting hyphæ are only 4–8μ in diameter. No septum divides the kohl-rabi from the stalk. The whole appearance of the fungus is strikingly similar to that described by Möller (except in being nearly twice as large) and it is not impossible that it will prove to be the same species.

BAILEY, L. H.: *Variation after birth.*—Read by title.

COVILLE, FREDERICK W.: *Poisoning by broad-leaved laurel, Kalmia latifolia.*—Read by title.

MONDAY AFTERNOON, SEPTEMBER 2D.

MACDOUGAL, D. T.: *The transmission of stimuli-effects in Mimosa pudica.*—The author showed that Haberlandt's explanation of transmission of stimuli by the "Schlauchzelle" was not tenable. Stems or petioles killed by a steam jacket for 5–10^{cm}, and those from which the phloem region (including the "Schlauchzelle") had been removed, were still able to transmit the stimulus-effect. Sudden application of a hydrostatic pressure of five to twenty atmospheres and sudden di-

minution of normal hydrostatic pressure entirely failed to produce any effect though the contact stimulus was promptly effective on the experimental plants. Excluding the hydrostatic theory of Haberlandt, at present it seems necessary to assume transmission by the tissues of the entire cross-section.

MACDOUGAL, D. T.: *The physiology of Isopyrum biternatum.*—The first recognizable carbohydrate in this plant is amylo-dextrin, starch of the ordinary type not appearing in the leaves. At certain periods a starch appears in the tubers which reacts red with iodine, a form which has been believed to be characteristic of parasitic plants.

COOK, O. F.: *Personal nomenclature in the Myxomycetes.*—Of the two systems of nomenclature, the "personal" and the "priority," only the former has been used in the Myxomycetes. This is illustrated by two recent monographs. Of 41 genera and 430 species in Massee's *Myxogastres* only 33 generic and 160 specific names appear in Lister's *Mycetozoa.* If, however, uniformity with the future is to be secured, the still more radical changes necessitated by the principle of priority should be made. Nearly all the genera established by Rostafinski must be supplanted by names disused for fifty years or longer. It also appears that the older generic names were so applied that the usual method of application of the law of priority will necessitate the shifting of generic names from one family to another, according as certain characters are looked upon as of greater or less importance. Thus there are three generic conceptions to which the name Physarum may be applied. This confusion would be avoided if we adopt the principle of considering the first species under a genus to be the generic type from which the generic name can not be separated.

CAMPBELL, DOUGLAS H.: *A new Californian liverwort.*—The author describes a liverwort, allied to the genus Sphærocarpus, collected near San Diego, which probably constitutes a new genus.

JEPSON, WILLIS L.: *The number of spore mother-cells in the sporangia of ferns.*—Read by title.

BOLLEY, H. L.: *The constancy of the bacterial flora of fore-milk.*—This paper is a report of a number of original investigations bearing upon the constancy of the species and physiological types of bacteria present in the normal fore-milk. In general it may be said that the species may be quite constant in the udder of an individual animal, but there is slight

evidence of constancy among different animals even under the same conditions.

SMITH, ERWIN F.: *The watermelon wilt and other wilt diseases due to Fusarium.*—Read by title.

MACLOSKIE, GEO.: *A root fungus of maize.*

MACLOSKIE, GEO.: *Antidromy in plants.*—The author claims to have discovered two kinds of flowering plants as to phyllotaxy, inflorescence, and, in some cases, the seeds. Of every species there appear to be dextrorse and sinistrorse individuals in about equal numbers. This difference is dependent upon the origin of the ovules being from the right or left margin of the carpel and is a primitive character which he designates by the term antidromy.

PILLSBURY, J. H.: *On the analysis of floral colors.*—Read by title.

BARNES, CHAS. R., and TRUE, RODNEY H.: *A summary of a revision of the North American species of the genus Dicranum.*—Read by title.

WEBBER, H. J.: *Experiments in pollinating and hybridizing the orange.*—Read by title.

HART, CHARLES PORTER: *History and present status of orange culture in Florida.*—Read by title.

PATTERSON, MRS. FLORA W.: *An Exoascus upon Alnus leaves.*—Read by title.